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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,300	12/12/2003	James B. Piket	33692.03.1428	9954

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VEDDER PRICE KAUFMAN & KAMMHOLZ
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CHICAGO, IL 60601

EXAMINER

HAROLD, JEFFEREY F

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,300

Applicant(s)

PIKET ET AL

Examiner

Jefferey F. Harold

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-25 is/are rejected.
- 7) ☐ Claim(s) 4-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/21/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 1 and 2** are rejected under 35 U.S.C. 102(e) as being anticipated by Takahashi et al. (United States Patent 6,868,158), hereinafter referenced as Takahashi.

Regarding **claim 1**, Takahashi discloses an echo processing apparatus. In addition, Takahashi discloses an echo canceller circuit comprising: a double talk activity probability data generator (16) operative to receive pre-echo canceller uplink data (near end signal) and in response to produce double talk activity probability data (judgment signal); and an echo canceller stage (7), operatively coupled to the double talk activity probability data generator (16) and operative to receive downlink data (received signal), the pre-echo canceller uplink data (near end signal) and the double talk activity probability data (judgment signal) and in response to produce attenuated uplink data (transmission signal), as disclosed at column 7, line 43 through column 11, line 47 and exhibited in figures 2 and 3.

Regarding **claim 2**, Takahashi discloses everything claimed as applied above (see claim 1), in addition, Takahashi discloses wherein the echo canceller stage (7)

includes an echo canceller adaptive filter (8) operatively coupled to the double talk activity probability data generator (16) and operative to receive the double talk activity probability data (judgment signal) and the attenuated downlink data (received signal) and in response to produce echo estimation data (pseudo echo signal) and to adjust a rate of echo cancellation adaptation (halt and start of the updating of the coefficients), as disclosed at column 7, line 43 through column 11, line 47 and exhibited in figures 2 and 3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. ***Claims 3, 7, 8, 10-21, 23 and 24*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Younce et al. (United States Patent 5,274,705), hereinafter referenced as Younce.

Regarding **claim 3**, Takahashi discloses everything claimed as applied above (see claim 1), in addition, Takahashi discloses wherein the echo canceller stage further includes: adder logic (9) operative to receive the pre-echo canceller uplink data (near end signal) and echo estimation data (pseudo echo signal) and in response to produce post-echo canceller uplink data (transmission signal), as disclosed at column 11, line 20 through column 14, line 68 and exhibited in figures 5 and 6, however, Takahashi fails to

disclose an uplink data attenuator, operatively coupled to the adder logic, and operative to receive the post-echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce the attenuated uplink data. However, the examiner maintains that it was well known in the art to provide an uplink data attenuator, operatively coupled to the adder logic, and operative to receive the post-echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce the attenuated uplink data, as taught by Younce.

In a similar field of endeavor Younce discloses a nonlinear processor for an echo canceller and method. In addition, Younce discloses an uplink data attenuator (NLP), operatively coupled to the adder logic, and operative to receive the post-echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce the attenuated uplink data, as disclosed at column 6, line 48 through column 8, line 14 and exhibited in figures 5 and 6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takahashi by specifically providing an uplink data attenuator, operatively coupled to the adder logic, and operative to receive the post-echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce the attenuated uplink data, as taught by Younce, for the purpose of residual echo suppression.

Regarding **claim 7**, Takahashi discloses a double talk activity probability generator (12) operative to receive pre-echo canceller uplink data (near end signal) and

in response to produce double talk activity probability data (judgment signal); a pre-processor (high pass filter 11), operatively coupled to the double talk probability data generator (12), and operative to receive downlink data (received signal); and the double talk activity probability data 9judgment signal) and in response to produce attenuated downlink data (low-frequency suppressed received signal); adder logic (9) operatively coupled to receive the pre-echo canceller uplink data (near end signal) and echo estimation data (pseudo echo signal) and in response to produce post-echo canceller uplink data (transmission signal), as disclosed at column 11, line 20 through column 14, line 68 and exhibited in figures 5 and 6; however, Takahashi fails to disclose a post-processor, operatively coupled to the double talk activity probability data generator and to the adder logic, and operative to receive the post- echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce attenuated uplink data. However, the examiner maintains that it was well known in the art to provide a post-processor, operatively coupled to the double talk activity probability data generator and to the adder logic, and operative to receive the post- echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce attenuated uplink data, as taught by Younce.

In addition, Younce discloses a post-processor (NLP), operatively coupled to the double talk activity probability data generator and to the adder logic, and operative to receive the post- echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce attenuated

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uplink data, as disclosed at column 6, line 48 through column 8, line 14 and exhibited in figures 5 and 6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Younce by specifically providing a post-processor, operatively coupled to the double talk activity probability data generator and to the adder logic, and operative to receive the post-echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce attenuated uplink data, as taught by Younce, for the purpose of residual echo cancellation.

Regarding **claim 8**, Takahashi and Younce, the combination, disclose everything claimed as applied above (see claim 7), in addition Takahashi discloses wherein the pre-processor (high pass filter) includes a downlink data attenuator operative to receive the downlink data and the double talk activity probability data and in response to attenuate the downlink data to produce the attenuated downlink data, as disclosed at column 11, line 20 through column 14, line 68 and exhibited in figures 5 and 6, however, the combination fails to disclose wherein the post-processor includes an uplink data attenuator operative to receive the post-echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce the attenuated uplink data. However, the examiner maintains that it was well known in the art to provide wherein the post-processor includes an uplink data attenuator operative to receive the post-echo canceller uplink data and the double talk

activity probability data and in response to attenuate the post-echo canceller uplink data to produce the attenuated uplink data, as taught by Younce.

In addition, Younce discloses wherein the post-processor includes an uplink data attenuator operative to receive the post-echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce the attenuated uplink data as disclosed at column 6, line 48 through column 8, line 14 and exhibited in figures 5 and 6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination by specifically providing wherein the post-processor includes an uplink data attenuator operative to receive the post-echo canceller uplink data and the double talk activity probability data and in response to attenuate the post-echo canceller uplink data to produce the attenuated uplink data, as taught by Younce, for the purpose of removing residual echo.

Regarding **claim 10**, Takahashi and Younce, the combination disclose everything claimed as applied above (see claim 8), in addition the combination discloses a digital-to-analog converter (1), operatively coupled to the downlink data attenuator (15), and operative to receive the attenuated downlink data and in response to produce a downlink audio signal (sound signal); an amplifier (2), operatively coupled to the digital-to-analog converter (1), and operative to receive the downlink audio signal and in response to produce an amplified downlink audio signal; a microphone (4), operatively coupled to receive at least a portion of the amplified downlink audio signal (echo) and in response to produce a pre-echo canceller uplink signal, and an analog-to-

digital converter (6), operatively coupled to the microphone (4), the adder logic (9) and to the double talk activity probability generator (16), and operative to receive the pre-echo canceller uplink signal and in response to produce the pre-echo canceller uplink data (near end signal), as exhibited in figure 2.

Regarding **claims 11-21, 23 and 24**, they are interpreted and thus rejected for the reasons set forth above in the rejection of claims 1-10.

3. **Claims 9, 22 and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi in view of Younce ('705) and further in view of Younce (United States Patent 6,718,035), hereinafter referenced as Younce ('035).

Regarding **claim 9**, Takahashi and Younce ('705), the combination discloses everything claimed as applied above (see claim 7), in addition the combination discloses an echo canceller adaptive filter (8), operatively coupled to the adder logic (9), the pre-processor (high pass filter (15)) and to the double talk activity probability data generator (16), and operative to receive the attenuated downlink data (received signal) and the double talk activity probability data (16) and in response to produce the echo estimation data (judgment signal), as disclosed at column 11, line 20 through column 14, line 68 and exhibited in figures 5 and 6, however, the combination fails to disclose changing a rate of echo cancellation adaptation. However, the examiner maintains that it was well known in the art to provide changing a rate of echo cancellation adaptation, as taught by Younce '035.

In a similar field of endeavor Younce '035 discloses an echo canceller employing dual-h architecture having split adaptive gain settings. In addition, Younce discloses changing a rate of echo cancellation adaptation, as disclosed at column 9, line 46 through column 11, line 11 and exhibited in figure 6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination by specifically providing changing a rate of echo cancellation adaptation, as taught by Younce '035, for the purpose of change the filter convergence rate.

Regarding **claims 22 and 25**, it is interpreted and thus rejected for the reasons set forth above in the rejection of claims 23 and 9.

Allowable Subject Matter

4. **Claims 4-6** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jefferey F. Harold whose telephone number is 571-272-7519. The examiner can normally be reached on Monday - Friday 9 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JFH

JFH
May 27, 2005

Jefferey F Harold
Jefferey F Harold
Examiner
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